

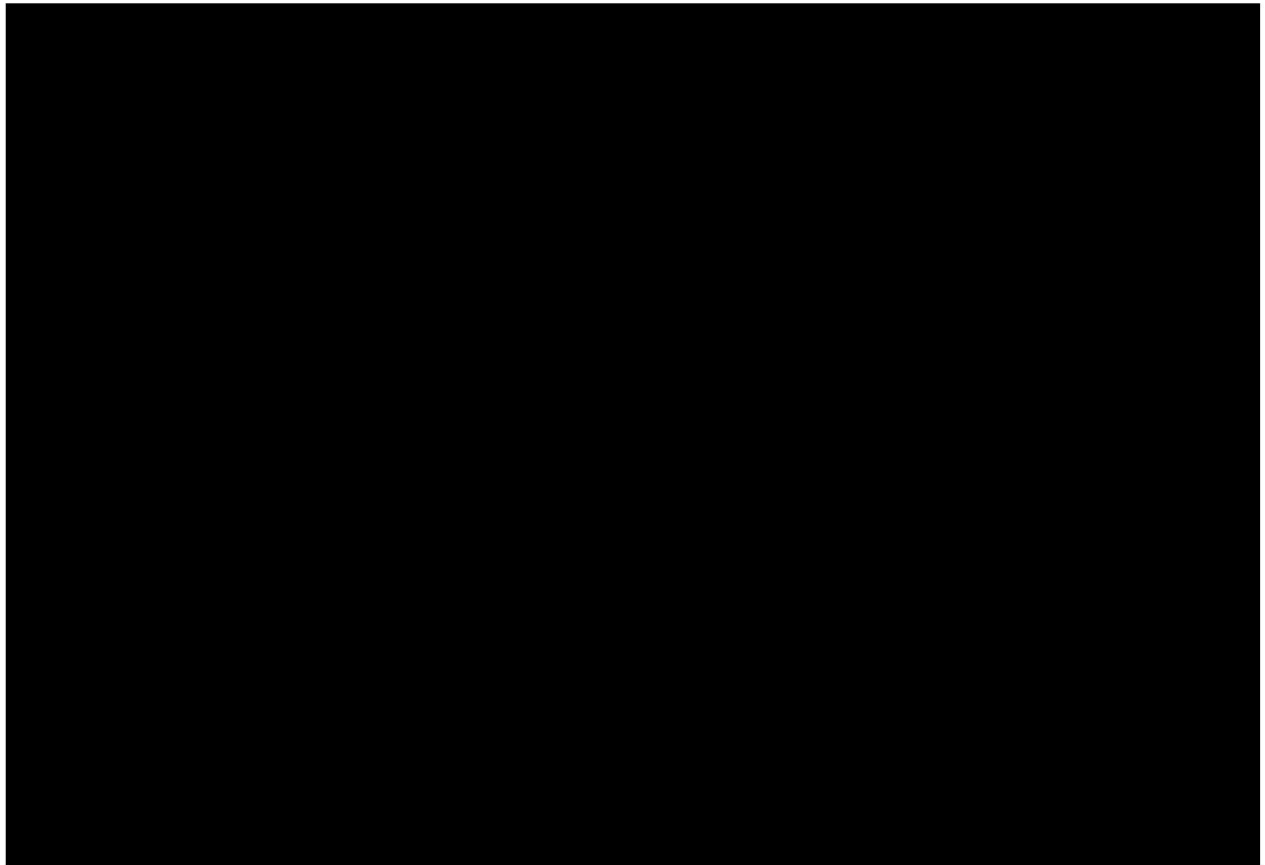
## CRITICAL PRESSURE CALCULATION

### CTV II

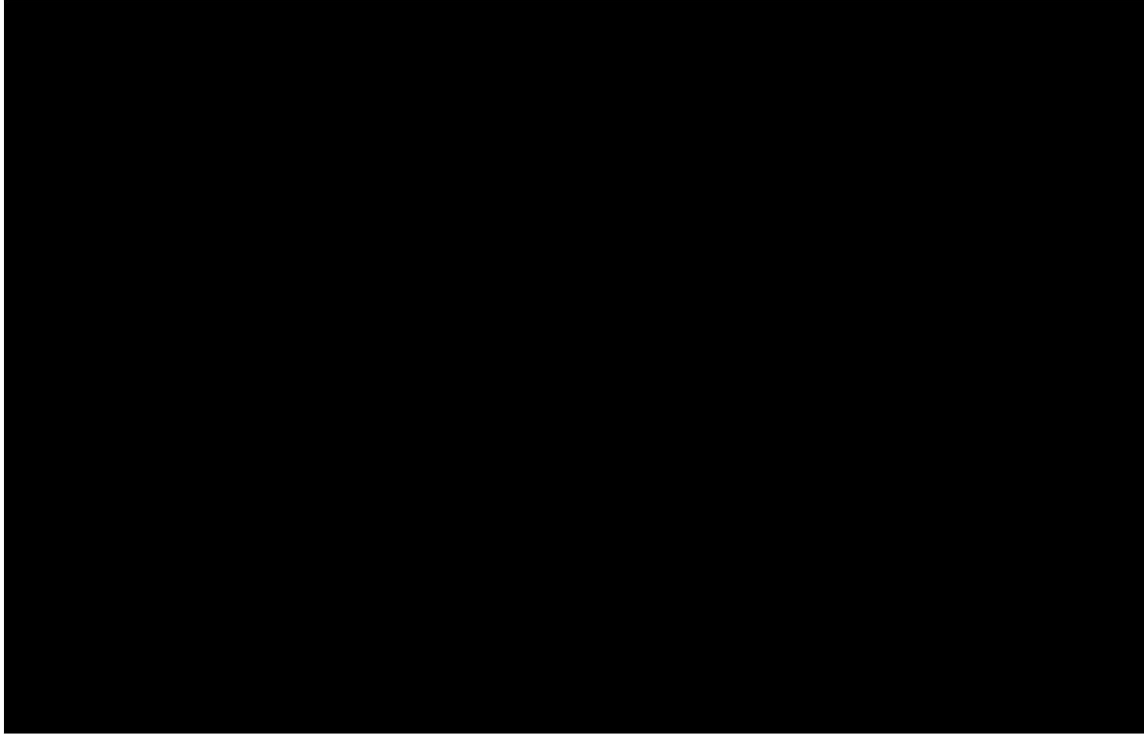
### Critical Pressure Calculation

At the project area, USDW is Undifferentiated Non-Marine formation at around 2400 feet TVD based of the lowermost USDW, and the average TDS is 8500 ppm. The top of the injection zone is 9500 TVD which is below the USDW, and TDS is 15000 ppm.

**Figure 1.** is a schematic representing the local stratigraphy of the project area, [REDACTED] [REDACTED] and proposed zone of injection. [REDACTED]  
[REDACTED]  
[REDACTED]. [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
The final reservoir pressure post injection is shown in figure 2.



**Figure 1.** Schematic northwest to southeast cross section in the Sacramento basin, intersecting the project AoR.



**Figure 2.** CTV II storage project reservoir pressure at 100 years post injection

The pressure front is defined as the minimum pressure within the injection zone necessary to cause fluid flow from the injection zone into the formation matrix of the USDW through a hypothetical conduit, which is referenced in the US EPA AoR and Corrective Action Guidance. Specifically, the following equation was used

$$P_{i,f} = \frac{\rho_i}{\rho_u} P_u + g\rho_i(Z_i - Z_u)$$

Where,

$P_{i,f}$  – Injection zone Pressure front, Pa

$P_u$  – Base of USDW zone pressure, Pa

$\rho_i$  – injection zone brine density, kg/m<sup>3</sup>

$\rho_u$  – USDW zone water density, kg/m<sup>3</sup>

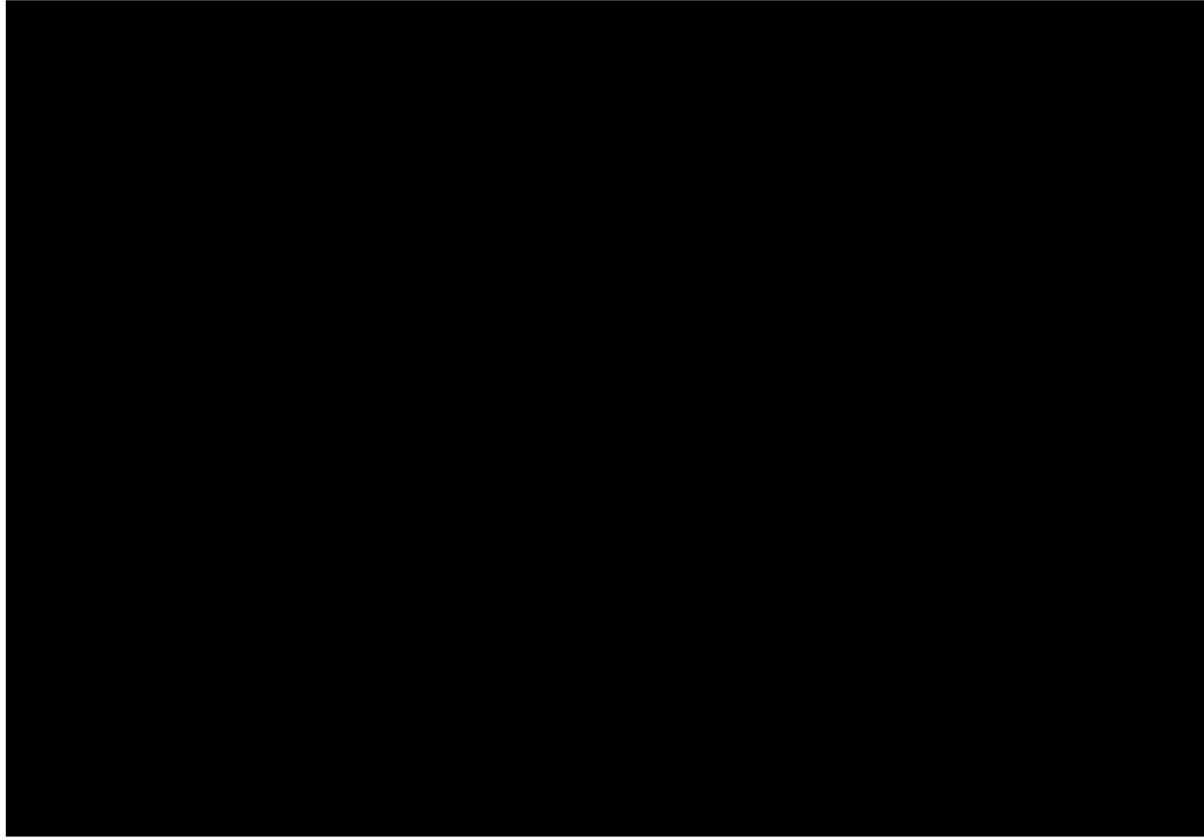
$Z_i$  – Injection zone depth, m TVD

$Z_u$  – Base of USDW zone depth, m TVD

$g$  – acceleration due to gravity, 9.81m/s<sup>2</sup>

An average TDS of 15,000ppm used for the injection zone based on water analysis, and an average TDS of 8,500ppm was assumed for the USDW based on Salinity calculations in the project area. Injection zone

and USDW depths is around 2400 feet TVD in the project area, which results in USDW pressure 1039.2 psi assuming water table is at the land surface. **Figure 3.** shows calculated pressure front based on USDW and Injection zone input.



**Figure 3.** Pressure Front Map in PSI using the Base USDW [REDACTED]

#### **Summary of AoR**

[REDACTED]  
[REDACTED]  
[REDACTED] As such, CTV defines the AoR as the aerial extent of the CO2 plume.